

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/AU2005/000035

A. CLASSIFICATION OF SUBJECT MATTER												
Int. Cl. 7: G01N 21/35, G01J 3/42, 3/45, G08G 5/04												
According to International Patent Classification (IPC) or to both national classification and IPC												
B. FIELDS SEARCHED												
Minimum documentation searched (classification system followed by classification symbols)												
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched												
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)												
<ul style="list-style-type: none"> <li>DWPI; SO2 OR SULPHUR DIOXIDE; WATER OR H2O OR CLOUD? OR MOISTURE OR HUMIDITY; DETECT+ OR IMAG+ OR SENS+ OR DISTINGUISH+ OR IDENTIF+OR G01N-021/IC; INFRARED OR IR OR TIR; TERRESTRIAL OR AIRBORNE OR AHEAD OR SKY OR "GROUND BASED", SUBTRACT+ OR COMPENSAT+ OR CORRECT+ OR DISCRIMINAT+ OR ELIMINAT+; SPECTR+, +BAND+ OR WAVENUMBER? OR WAVELENGTH? OR ABSORPTION OR EMISSION OR FEATURE? OR SIGNATURE? OR LINE? OR FREQUENC+ OR FILTER+ OR +CHANNEL? OR MULTISPECTR+ and similar keywords</li> <li>Google Scholar: SULPHUR DIOXIDE; WATER; DETECT; THERMAL INFRARED and similar combinations of keywords</li> </ul>												
C. DOCUMENTS CONSIDERED TO BE RELEVANT												
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
X	PRATA A. J., ROSE W.I., SELF S. and O'BRIEN D.M., Global, Long-Term Sulphur Dioxide Measurements From TOVS Data: A New Tool for Studying Explosive Volcanism and Climate, <i>Volcanism and the Earth's Atmosphere</i> , Alan Robock, Clive Oppenheimer, editors; Geophysical Monograph 139, ISBN 0-87590-998-1; Copyright 2003 by the American Geophysical Union; pages 75-92, see in particular Figure 1 and its description; section 3, including subsections 3.3-3.4	1-20										
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex												
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&amp;" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention											
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone											
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art											
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family											
"P" document published prior to the international filing date but later than the priority date claimed												
Date of the actual completion of the international search 22 March 2005		Date of mailing of the international search report 30 MAR 2005										
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929		Authorized officer  GREG POWELL Telephone No : (02) 6283 2308										

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5654700 A (PRATA et al.) 5 August 1997 The whole document and in particular the paragraph bridging columns 4 and 5, Figure 5, Claims 10 and 17	1-20
P, X	WATSON I.M., REALMUTO V.J., ROSE W.L., PRATA A.J., BLUTH G.J.S., GU Y., BADER C.E., YU T., Thermal infrared remote sensing of volcanic emissions using the moderate resolution imaging spectroradiometer, <i>Journal of Volcanology and Geothermal Research</i> 135 (2004) pages 75-89, (available online from 18 May 2004); see Figure 1(D) and Table 1 (channels 28 and 29)	1-20
A	PUGNAGHI S., TEGGI S., CORRADINI S., BUONGIORNO M.F., MERUCCI L., BOGLIOLO M.P., Estimation of SO <sub>2</sub> abundance in the eruption plume of Mt. Etna using two MIVIS thermal infrared channels: a case study from the Sicily-1997 Campaign, <i>Bull Volcanol</i> (2002) 64, pages 328-337, see abstract	
A	US 3805074 A (MCCORMACK) 16 April 1974 Abstract, columns 5-6	
A	Patents Abstracts of Japan JP 60-011122 A (SHIMADZU CORP) 21 January 1985 Abstract	
A	Derwent Abstract Accession No 83-754335/36, Class S03, EP 0087077 A (SIEMENS AG) 31 August 1983 Abstract	
P, A	US 6822236 B1 (NELSON et al.) 23 November 2004 Abstract, Column 5, lines 12-21 and entire Column 8	

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/AU2005/000035**

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member			
US	5654700	AU	76657/91	CA	2079812
		HK	1002938	SG	46261
		WO	9115739	EP	0525007
US	3805074	CA	1011129	US	5602543
		JP	49099082	FR	2212927
JP	60011122	DE	3206427	JP	58156837
EP	0087077	US	6750453		
US	6822236				
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.					
END OF ANNEX					